

Dear Sir:

In response to the Office Action mailed on June 20, 2001, Applicant offers the following amendment and response to Office Action, and requests reconsideration of the above-captioned application. This response addresses every ground of rejection set forth in the Office Action.

AMENDMENTS

In the Claims

Kindly amend claim 2:

2. An optical polarization beam splitter comprising:

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- a first optical fiber having an end defining a first optical axis;
  - a second optical fiber having an end defining a second optical axis;
  - a third optical fiber having an end defining a third optical axis parallel to and spaced apart from said second optical axis;
  - a collimating lens disposed along said first optical axis positioned to form a collimated optical beam from said first optical fiber;
  - a focussing lens disposed along a path of said collimated optical beam;
  - a birefringent walk-off crystal having a first face adjacent to said focusing lens, said first face located at a focal plane of said focusing lens and a second

face in contact with said ends of said second and third optical fibers, said crystal oriented such that and having a thickness between said first and second faces selected such that a first component of said optical beam having a first polarization exiting said crystal at said second face enters said end of said second optical fiber along said second optical axis and a second component of said optical beam having a second polarization orthogonal to the polarization of said first polarization exiting said crystal at said second face enters said end of said third optical fiber along said third optical axis.

Kindly add the following claims:

22. An optical polarization beam splitter comprising:

- a first optical fiber having an end defining a first optical axis;
- a second optical fiber having an end defining a second optical axis;
- a third optical fiber having an end defining a third optical axis parallel to and spaced apart from said second optical axis;
- a collimating lens disposed along said first optical axis positioned to form a collimated optical beam from said first optical fiber;
- a focusing lens disposed along a path of said collimated optical beam;
- a birefringent walk-off crystal having a first face adjacent to said focusing lens said first face located at a focal plane of said focusing lens and a second face in contact with said ends of said second and third optical fibers, said crystal oriented such that said first optical axis is not normal to said crystal, said crystal oriented such that

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cont.  
and having a thickness between said first and second faces selected such that a first component of said optical beam having a first polarization exiting said birefringent walk-off crystal at said second face enters said end of said second optical fiber along said second optical axis and a second component of said optical beam having a second polarization orthogonal to the polarization of said first polarization exiting said crystal at said second face enters said third optical fiber along said third optical axis.

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8. The optical polarization beam splitter of claim 22 wherein said second and third optical fibers are polarization maintaining fibers.

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9. The optical polarization beam splitter of claim 22 wherein said second optical axis and said third optical axis are spaced apart by a distance of less than 2mm.

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10. The optical polarization beam splitter of claim 22 disposed in a package having a length of less than about 50mm and a diameter of less than about 10mm.

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11. The optical polarization beam splitter of claim 22 disposed in a package having a length of about 36mm and a diameter of about 5.5mm.

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12. An optical polarization beam splitter comprising:

a first optical fiber having an end defining a first optical axis;

a second optical fiber having an end defining a second optical axis distinct from said first optical axis;

a third optical fiber having an end defining a third optical axis distinct from both said first and second optical axes, said third axis is parallel to and spaced apart from said second optical axis;

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a collimating lens disposed along said first optical axis positioned to form a collimated optical beam from said first optical fiber;

a focusing lens disposed along a path of said collimated optical beam; and

*B2 cont.*

a birefringent walk-off crystal having a first face adjacent to said focusing lens and located at a focal plane of said focusing lens, and a second face in contact with said ends of said second and third optical fibers.

*Sub C2 x m*

<sup>28</sup><sub>13.</sub> The optical polarization beam splitter of claim <sup>27</sup><sub>12</sub> wherein said birefringent walk-off crystal is oriented at a non-normal angle to said first optical axis.

<sup>29</sup><sub>14.</sub> The optical polarization beam splitter of claim <sup>27</sup><sub>12</sub> wherein said birefringent walk-off crystal is oriented such that a first component of said optical beam having a first polarization exiting said birefringent walk-off crystal at said second face enters said end of said second optical fiber along said second optical axis, and a second component of said optical beam having a second polarization orthogonal to the polarization of said first polarization exiting said crystal at said second face enters said third optical fiber along said third optical axis.

<sup>30</sup><sub>15.</sub> The optical polarization beam splitter of claim <sup>29</sup><sub>14</sub> wherein said second and third optical fibers are polarization maintaining fibers.

<sup>31</sup><sub>16.</sub> The optical polarization beam splitter of claim <sup>29</sup><sub>14</sub> wherein said second optical axis and said third optical axis are spaced apart by a distance of less than 2 mm.

<sup>32</sup><sub>17.</sub> The optical polarization beam splitter of claim <sup>29</sup><sub>14</sub> disposed in a package having a length of less than about 50mm and a diameter of less than about 10 mm.

<sup>33</sup><sub>18.</sub> An optical polarization beam splitter comprising:

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means for defining a first optical axis;

means for defining a second optical axis distinct from said first optical axis;

means for defining a third optical axis distinct from both said first and second optical axes, said third axis is parallel to and spaced apart from said second optical axis;

means for collimating an optical beam disposed along said first optical axis positioned to form a collimated optical beam from said first optical axis defining means;

means for focusing an optical beam disposed along a path of said collimating means; and

means for refracting an optical beam into at least two components having orthogonal polarization components, said refracting means optically coupled with said first, said second, and said third optical axis defining means.

34 33  
19. The optical polarization beam splitter of claim 18 wherein said refracting means is oriented at a non-normal angle to said first optical axis.

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20. The optical polarization beam splitter of claim 18 wherein said second and third optical axis defining means are polarization maintaining fibers.

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21. The optical polarization beam splitter of claim 18 wherein said second optical axis and said third optical axis are spaced apart by a distance of less than 2 mm.

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22. The optical polarization beam splitter of claim 18 disposed in a package having a length of less than about 50mm and a diameter of less than about 10 mm.